

CONTRIBUTIONS TO THE BRYOPHYTE FLORA OF TURKEY VI:

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In the last number of this series of papers (Notes R.B.G. Edinb. 23, 279-301: 1960) all the recorded information on the bryophyte flora of Turkey was summarized. At that time I suggested that there must be major gaps still to be filled; collectors whose main interests were phanerogamic had merely snatched the more conspicuous mosses in passing. During the summer of 1960 I spent three months in Turkey collecting in the company of J. D. A. Stainton. Our route stretched from the northern Pontic mountains across the plateau to the Mediterranean coast and back and there was opportunity to collect in all three main phytogeographic regions of the country, although the time spent in the Mediterranean region was comparatively short. The main conclusion to be drawn from working the collection is that previous collectors had, in fact, sampled the flora very efficiently. One hundred and three moss taxa were collected and only fifteen hepatics. Of these, eleven taxa proved additions to the previous account. The paucity of liverworts in the northern mountains and the almost complete lack of leafy liverworts in the Irano-Turanian region is certainly confirmed. Undoubtedly more bryophytes are to be found in Turkey, but one person's energies devoted entirely to hunting for them will be necessary to add anything more worthwhile. A few mosses and hepatics collected by L. F. H. Merton at an interesting locality near Ankara have been included in this account.

I am indebted to J. D. A. Stainton for the opportunity to collect in Turkey. The collecting numbers integrate with those of our collections of flowering plants and parasitic fungi. Localities can be clarified by reference to the details of our itinerary published elsewhere in this volume (Coode, M. Turkish Itineraries, III. Notes R.B.G. Edinb. 26, 165-169 (1963). The first set of specimens is deposited in the Edinburgh herbarium.

Andreaea rupestris Hedw.

ARTVIN: Mağara yayla, Şavval Tepe, Murgul, 2000 m., on granite rocks above tree line, 6 July 1960, S. & H. 6024a.

RİZE: Rize to Ispir, top of pass, 3000 m., on granite rocks, 16 July 1960, S. & H. 6280c; İlica, 2200 m., on wet granite rocks and in *Rhododendron* scrub, 21 July 1960, S. & H. 6307c.

Oligotrichum hercynicum (Hedw.) Lam. & DC.

RİZE: İlica, 1000 m., on bare sandy soil, 21 July 1960, S. & H. 6308.

Polytrichum norvegicum Hedw.

RİZE: İlica 2200 m., on wet granite rocks and in *Rhododendron* scrub, 21 July 1960, S. & H. 6307g.

***Polytrichum piliferum* Hedw.**

ARTVIN: Otingol, 2000 m., epiphytic on trees and on rocks, 3 July 1960, S. & H. 5995g.

RIZE: Ilica, 2200 m., on wet granite rocks and in *Rhododendron* scrub, 21 July 1960, S. & H. 6307i.

***Polytrichum juniperinum* Hedw.**

SIVAS: Bey Dağ, S. of Zara, 2000 m., on north-facing sandstone rocks by side of stream, 2 June 1960, S. & H. 5316h.

***Fissidens taxifolius* Hedw.**

RIZE: 20 km., W. of Pazar, 10 m., on damp shady banks, on acid rocks, 29 June 1960, S. & H. 5908c.

***Ditrichum* aff. *cylindricum* (Hedw.) Grout**

SIVAS: Bey Dağ, S. of Zara, 2000 m., on north-facing sandstone rocks by side of stream, 2 June 1960, S. & H. 5316d.

***Ditrichum flexicaule* (Schleich.) Hampe**

RIZE: Rize to Ispir, top of pass, 3000 m., on granite rocks, 16 July 1960, S. & H. 6280j.

ANKARA: Ankara Baraj, in crevices among rocks of volcanic tuff, 7 April 1958, *Merton* 37.

***Distichium capillaceum* (Hedw.) B.S.G.**

RIZE: İkizdere to Ispir, 3000 m., granite rocks and snow patch, 15 July 1960, S. & H. 6208b.

***Ceratodon purpureus* (Hedw.) Brid.**

SIVAS: Zara to Sivas road, 1300 m., in Juniper scrub, 20 May 1960, S. & H. 5097a.

ANKARA: Ankara Baraj, on wet rocks volcanic tuff, 12 April 1958, *Merton* 97.

***Dicranella heteromalla* (Hedw.) Schimp.**

ARTVIN: Otingol, 2000 m., streamsides and rocks in yayla pasture, on granite rocks, 3 July 1960, S. & H. 5994d.

***Dicranoweissia crispula* (Hedw.) Lindb.**

ARTVIN: Otingol, 1500 m., on granite rocks, 4 July 1960, S. & H. 6022a.

RIZE: Ilica, 2200 m., on wet granite rocks and in *Rhododendron* scrub, 21 July 1960, S. & H. 6307k.

***Dicranum starkei* Web. & Mohr**

ARTVIN: Mağara yayla, Şavval Tepe, Murgul, 2000 m., on granite rocks above tree line, 6 July 1960, S. & H. 6024d.

***Dicranum fuscescens* Turn.**

RIZE: Ilica, 2200 m., on wet granite rocks and in *Rhododendron* scrub, 21 July 1960, S. & H. 6307l.

Dicranum majus Turn.

ARTVIN: Mağara yayla, Şavval Tepe, Murgul, 2000 m., on granite rocks above tree line, 6 July 1960, S. & H. 6024c.

Dicranum scoparium Hedw.

ARTVIN: Otingol, 2000 m., epiphytic on trees and on rocks, 3 July 1960, S. & H. 5995d.

RIZE: İkizdere to Ispir, 3000 m., granite rocks and snow patch, 15 July 1960, S. & H. 6208a.

Paraleucobryum enerve (Thed.) Loeske

RIZE: Rise to Ispir, top of pass, 3000 m., on granite rocks, 16 July 1960, S. & H. 6280g.

Encalypta vulgaris Hedw.

SIVAS: Bey Dağ, S. of Zara, 2700 m., on dry north-facing sandstone rocks, 2 June 1960, S. & H. 5318a; Şebinkarahisar to Giresun, top of pass and summit ridges, 1400 m., on turfy banks and igneous rocks, 24 June 1960, S. & H. 5817c.

RIZE: Ilica, 2200 m., on wet granite rocks and in *Rhododendron* scrub, 21 July 1960, S. & H. 6307b.

ANKARA: Ankara Baraj, damp crevices in volcanic tuff, 7 April 1958, Merton 118.

Tortula ruralis (Hedw.) Crome

TRABZON: 2 miles S. of Trabzon, 100 m., on igneous rocks, S. & H., 5025a.

SIVAS: Zara to Sivas road, 1300 m., in Juniper scrub, 20 May 1960, S. & H. 5097c; Pınarbasi to Gırun, 1700 m., on dry igneous rocks, 27 May 1960, S. & H. 5202d; Gırun, 1400 m., on wet limestone rocks, 28 May 1960, S. & H. 5260d; Bey Dağ, S. of Zara, 2700 m., on dry north-facing sandstone rocks, 2 June 1960, S. & H. 5318c; Yıldız Dağ, 1800 m., on bases of oaks, 4 June 1960, S. & H. 5350c.

MALATYA: Hekimhan, 1300 m., dry acid rocks, 8 June 1960, S. & H. 5415a.

MARAS: Berit Dağ to Elbistan, 1800 m., on dry acid boulders, 16 June 1960, S. & H. 5622d.

Tortula ruraliformis (Besch.) Dix.

TRABZON: 2 miles S. of Trabzon, 100 m., on igneous rocks, 16 May 1960, S. & H. 5025d.

Tortula norvegica (Web.) Wahl. ex Lindb.

SIVAS: Yıldız Dağ, 2200 m., on bases of oak scrub, 5 June 1960, S. & H. 5354b.

Tortula intermedia (Brid.) Berk.

TRABZON: 2 miles S. of Trabzon, 100 m., on igneous rocks, 16 May 1960, S. & H. 5025e.

ANKARA: Ankara Baraj, in rock crevices, 12 April 1958, *Merton*, 13.

***Tortula intermedia* (Brid.) Berk.**

SIVAS: Gürün, 1400 m., on wet limestone rocks, 28 May 1960, *S. & H.* 5260a.

***Tortula papillosissima* (Copp.) Broth.**

ANKARA: Ankara Baraj, in crevices of the rocks, volcanic tuff, especially near seeps, golden brown, 12 April 1958, *Merton*, 7.

***Tortula desertorum* Broth.**

SIVAS: Pinarbaşı, 1300 m., on dry limestone rocks, 25 May 1960, *S. & H.* 5161a.

MALATYA: Kangal to Hekimhan, 1300 m., on gypsum. No fruiting material seen here in 2 days' collecting, 7 June 1960, *S. & H.* 5392.

***Tortula alpina* (B.S.G.) Bruch**

MARAS: Berit Dağ to Elbistan, 1800 m., on dry acid boulders, 16 June 1960, *S. & H.* 5622b.

***Tortula subulata* Hedw.**

SIVAS: Yıldız Dağ, 1800 m., on bases of oaks, 4 June 1960, *S. & H.* 5350a.

ARTVIN: Otingol, 2000 m., streamsides and rocks in yayla pasture, 3 July 1960, *S. & H.* 5994a; Otingol, 1500 m., on granite rocks, 4 July 1960, *S. & H.* 6022b.

***Tortula inermis* Mont.**

GÜMÜŞANE: Gümüşane, 1400 m., in scrub oak community, 18 May 1960, *S. & H.* 5059.

GİRESUN: Aluçra, 1300 m., on dry igneous rocks facing north, 19 May 1960, *S. & H.* 5076b.

SIVAS: Bey Dağ, S. of Zara, 2000 m., on north-facing sandstone rocks by side of stream, 2 June 1960, *S. & H.* 5317.

ANKARA: Ankara Baraj, on earth banks, 12 April 1958, *Merton*, 110; *ibid.* crevices of volcanic tuff, 7 April 1958, *Merton*, 111.

***Tortula muralis* (Hedw.) Crome**

SIVAS: Bey Dağ, S. of Zara, 2000 m., on north-facing sandstone rocks by side of stream, 2 June 1960, *S. & H.* 5316f; Yıldız Dağ, 2200 m., on bases of oak scrub, 5 June 1960, *S. & H.* 5354a.

***Desmatodon latifolius* (Hedw.) B.S.G.**

TRABZON: Bayburt to Of, 3 km. N. of pass, 2400 m., on base rich rocks and basic flushes, 11 July 1960, *S. & H.* 6205f.

***Aloina ambigua* (B. & S.) Limpr.**

ANKARA: Ankara Baraj, on volcanic tuff, 7 April 1958, *Merton*, 121.

***Crossidium griseum* Jur.**

ANKARA: Ankara Baraj, in crevices of volcanic tuff, peristome rudimentary, 12 April 1958, *Merton*, 100.

***Barbula fallax* Hedw.**

SIVAS: Gürün, 1400 m., on wet limestone rocks, 28 May 1960, *S. & H.* 5260c.

***Barbula rigidula* (Hedw.) Mitt.**

TRABZON: 3 km. S. of Trabzon, 100 m., on igneous rocks, 16 May 1960, *S. & H.* 5025b.

***Barbula vinealis* Brid.**

MALATYA: Hekimhan, 1300 m., dry acid rocks, 8 June 1960, *S. & H.* 5415b.

ANKARA: Ankara Baraj, crevices of the rocks, volcanic tuff, 7 April 1958, *Merton*, 45.

***Gymnostomum aeruginosum* Sm.**

TRABZON: Maçka, 24 km. south of Trabzon, 250 m., on lime-rich seeps in heavy shade, 28 June 1960, *S. & H.* 5898.

***Tortella tortuosa* (Hedw.) Limpr.**

GİRESUN: Aluçra, 1300 m., on dry igneous rocks facing north, 19 May 1960, *S. & H.* 5076c.

SIVAS: Gürün, 1400 m., on wet limestone rocks, 28 May 1960, *S. & H.* 5260f.

TRABZON: Bayburt to Of, 3 km. north of pass, 2400 m., on base rich rocks and basic flushes, 11 July 1960, *S. & H.* 6205d.

***Trichostomum brachydontium* Bruch**

ANKARA: Ankara Baraj, on soil by a seep, among grass, 7 April 1958, *Merton*, 86.

***Weissia controversa* Hedw.**

SIVAS: Şebinkarahisar to Giresun, top of pass and summit ridges, 1400 m., on turfey banks and igneous rocks, 24 June 1960, *S. & H.* 5817b.

***Grimmia apocarpa* Hedw.**

TRABZON: 3 km. south of Trabzon, 100 m., on igneous rocks, 16 May 1960, *S. & H.* 5025j.

SIVAS: Zara to Sivas Road, 1300 m., in Juniper scrub, 20 May 1960, *S. & H.* 5097b; Pinarbaşı, 1300 m., on dry limestone rocks, 25 May 1960, *S. & H.* 5161c; Pinarbaşı to Gürün, 1700 m., on dry igneous rocks, 27 May 1960, *S. & H.* 5202b; Bey Dağ, S. of Zara, 2000 m., on north-facing sandstone rocks by side of stream, 2 June 1960, *S. & H.* 5316b.

MALATYA: Hekimhan, 1300 m., dry acid rocks, 8 June 1960, *S. & H.* 5415c.

MARAS: Berit Dağ to Elbistan, 1800 m., on dry acid boulders, 16 June 1960, *S. & H.* 5622c.

ARTVIN: Otingol, 2000 m., epiphytic on trees and on rocks, 3 July 1960, S. & H. 5995c.

Grimmia apocarpa Hedw. var. **atrofusca** (Schimp.) Husn.

SIVAS: Pinarbaşı, 1300 m., on dry limestone rocks, 25 May 1960, S. & H. 5161b.

Grimmia conferta Funck

MARAS: Berit Dağ to Elbistan, 1800 m., on dry acid boulders, 16 June 1960, S. & H. 5622a.

Grimmia anodon B. S. G.

SIVAS: Gurun, 1400 m., on wet limestone rocks, 28 May 1960, S. & H. 5260b.

ANKARA: Ankara Baraj, on volcanic tuff, 7 April 1958, Merton, 112.

Grimmia commutata Huben.

GIRESUN: Aluçra, 1300 m., on dry igneous rocks facing north, 19 May 1960, S. & H. 5076d.

Grimmia laevigata (Brid.) Brid.

SIVAS: Pinarbaşı to Gürün, 1700 m., on dry igneous rocks, 27 May 1960, S. & H. 5202e.

Grimmia alpestris Schleich.

SIVAS: Şebinkarahisar to Giresun, top of pass and summit ridges, 1400 m., on turf banks and igneous rocks, 24 June 1960, S. & H. 5817d.

Grimmia caespiticia (Brid.) Jur.

SIVAS: Pinarbaşı to Gürün, 1700 m., on dry igneous rocks, 27 May 1960, S. & H. 5202a; Şebinkarahisar to Giresun, top of pass and summit ridges, 1400 m., on turf banks and igneous rocks, 24 June 1960, S. & H. 5817e. ARTVIN: Otingol, 2000 m., epiphytic on trees and on rocks, 3 July 1960, S. & H. 5995h.

Grimmia ovalis (Hedw.) Lindb.

SIVAS: Bey Dağ south of Zara, 2000 m., on north-facing sandstone rocks by side of stream, 2 June 1960, S. & H. 5317b.

Grimmia pulvinata (Hedw.) Sw.

TRABZON: 3 km. south of Trabzon, 100 m., on igneous rocks, 16 May 1960, S. & H. 5025f.

ANKARA: Ankara Baraj, 7 April 1958, Merton, 116.

Grimmia orbicularis Bruch

ANKARA: Ankara Baraj, on volcanic tuff, very abundant, 7 April 1958, Merton, 113; *ibid.* in crevices and on boulders of tuff, 12 April 1958, Merton, 114.

Grimmia funalis (Schwaegr.) Schimp.

ARTVIN: Mağara yayla, Şavval Tepe, Murgul, 2000 m., on granite rocks above tree line, 6 July 1960, S. & H. 6024f.

TRABZON: Bayburt to Of, 3 km. north of pass, 2400 m., on base rich rocks and basic flushes, 11 July 1960, S. & H. 6205b.

RIZE: Rize to Ispir, top of pass, 3000 m., on granite rocks, 16 July 1960, S. & H. 6280b.

Grimmia trichophylla Grev.

ANKARA: Ankara Baraj, on earth among rocks, 12 April 1958, Merton, 115.

Grimmia hartmanii Schimp.

RIZE: İkizdere to Ispir, 2000 m., on granite rocks, 15 July 1960, S. & H. 6207d; Ilica, 1000 m., on quartzite boulders in shade, 21 July 1960, S. & H. 6310b.

Rhacomitrium heterostichum (Hedw.) Brid.

ARTVIN: Otingol, 2000 m., epiphytic on trees and on rocks, 3 July 1960, S. & H. 5995i.

RIZE: Rize to Ispir, top of pass, 3000 m., on granite rocks, 16 July 1960, S. & H. 6280a.

ARTVIN: Mağara yayla, Şavval Tepe, Murgul, 2000 m., on granite rocks above tree line, 6 July 1960, S. & H. 6024i.

Rhacomitrium heterostichum (Hedw.) Brid. var. **gracilescens** B. S. G.

RIZE: Ilica, 2200 m., on wet granite rocks and in *Rhododendron* scrub, 21 July 1960, S. & H. 6307h.

Rhacomitrium canescens Brid.

ARTVIN: Mağara yayla, Şavval Tepe, Murgul, 2000 m., on granite rocks above tree line, 6 July 1960, S. & H. 6024h.

Leptobryum pyriforme (Hedw.) Wils.

RIZE: Ilica, 1000 m., on decaying alder wood, 21 July 1960, S. & H. 6309.

Pohlia aff. **elongata** Hedw.

RIZE: Rize to Ispir, top of pass, 3000 m., on granite rocks, 16 July 1960, S. & H. 6280d.

Pohlia albicans (Wahl.) Lindb.

RIZE: Ilica, 2200 m., on wet granite rocks and in *Rhododendron* scrub, 21 July 1960, S. & H. 6307f.

Plagiobryum zierii (Dicks.) Lindb.

ARTVIN: Otingol, 1500 m., on rocks by waterfall, 3 July 1960, S. & H. 5996e.

Bryum turbinatum (Hedw.) Schwaegr.

ANKARA: Ankara Baraj, in crevices of the rocks (volcanic tuff), 12 April 1958, *Merton*, 80.

Bryum schleicheri Schwaegr. var. **latifolium** (Schleich.) Schimp.

ARTVIN: Otingol, 2000 m., epiphytic on trees and on rocks, 3 July 1960, *S. & H.* 5995b.

Bryum funckii Schwaegr.

ANKARA: Ankara Baraj, on volcanic tuff, pale greeny-gold, 7 April 1958, *Merton*, 96.

Bryum argenteum Hedw.

ARTVIN: Otingol 1500 m., on rocks by waterfall, 3 July 1960, *S. & H.* 5996l.

Bryum capillare Hedw.

ARTVIN: Otingol, 1500 m., on rocks by waterfall, 3 July 1960, *S. & H.* 5996f.

ANKARA: Ankara Baraj, on earth banks, 12 April 1958, *Merton*, 104.

Bryum canariense Brid. var. **provinciale** (Philib.) Husn.

ANKARA: Ankara Baraj, on soil by a seep among rocks, 7 April 1958, *Merton*, 38.

Bryum inclinatum (Brid.) Bland.

ARTVIN: Otingol, 2000 m., epiphytic on trees and on rocks, 3 July 1960, *S. & H.* 5995a.

Mnium cuspidatum Hedw.

ARTVIN: Otingol, 1500 m., on rocks by waterfall, 3 July 1960, *S. & H.* 5996g.

Mnium longirostre Brid.

ARTVIN: Otingol, 1500 m., on *Fagus* trunks in *Picea* forest, 4 July 1960, *S. & H.* 6023d.

Mnium undulatum Hedw.

BALIKESIR: Kaz Dağ, Beypinar to Zetunli, 15 km., from Beypinar, 500 m., damp springy dripping limestone ledges, 20 April 1962, *Dudley* (D34852).

Philonotis fontana (Hedw.) Brid.

SIVAS: Bey Dağ, south of Zara, 2000 m., on north-facing sandstone rocks by side of stream, 2 June 1960, *S. & H.* 5316a, 5317a.

ARTVIN: Otingol, 1500 m., on rocks by waterfall, 3 July 1960, *S. & H.* 5996c.

Amphidium mougeotii (B. S. G.) Schimp.

GİRESUN: Aluçra, 1300 m., on dry igneous rocks facing north, 19 May 1960, *S. & H.* 5076e.

RIZE: 20 km. west of Pazar, 10 m., on damp shady banks, on acid rocks, 29 June 1960, S. & H. 5908b; Ilica, 2200 m., on wet granite rocks and in *Rhododendron* scrub, 21 July 1960, S. & H. 6307j.

ARTVIN: Otingol, 2000 m., epiphytic on trees and on rocks, 3 July 1960, S. & H. 5995f; Mağara yayla, Şavval Tepe, Murgul, 2000 m., on granite rocks above tree line, 6 July 1960, S. & H. 6024b.

ANKARA: Ankara Baraj, in tufa by a stream, 12 April 1958, Merton, 117.

***Orthotrichum rupestre* Schleich.**

ANKARA: Ankara Baraj, rock crevices, 12 April 1958, Merton, 119.

***Orthotrichum anomalum* Hedw.**

TRABZON: 3 km. south of Trabzon, 100 m., on igneous rocks, 16 May 1960, S. & H. 5025c.

GİRESUN: Aluçra, 1300 m., on dry igneous rocks facing north, 19 May 1960, S. & H. 5076a.

SİVAS: Pınarbaşı to Gürün, 1700 m., on dry igneous rocks, 27 May 1960, S. & H. 5202c.

ANKARA: Ankara Baraj, earth and rock banks, 12 April 1958, Merton, 120.

***Hedwigia ciliata* (Hedw.) Beauv.**

TRABZON: Bayburt to Of, 3 km. north of pass, 2400 m., on base-rich rocks and flushes, 11 July 1960, S. & H. 6205e.

RIZE: İkizdere to Ispir, 2000 m., on granite rocks, 15 July 1960, S. & H. 6207e.

***Leucodon sciurioides* (Hedw.) Schwaegr.**

TRABZON: 3 km. south of Trabzon, 100 m., on igneous rocks, 16 May 1960, S. & H. 5025h.

RIZE: Ilica, 100 m., *Fagus-Picea* forest, mostly epiphytes on beech, 19 July 1960, S. & H. 6292c.

***Pterogonium gracile* (Hedw.) Sm.**

RIZE: Rize to Ispir, top of pass, 3000 m., on granite rocks, 16 July 1960, S. & H. 6280i; Ilica, 1000 m., on quartzite boulders in shade, 21 July 1960, S. & H. 6310a.

***Myurella apiculata* (Schwaegr.) B. S. G.**

RIZE: Rize to Ispir, top of pass, 3000 m., on granite rocks, 16 July 1960, S. & H. 6280f; Ilica, 1000 m., *Fagus-Picea* forest, mostly epiphytes on beech, 19 July 1960, S. & H. 6292b.

***Myurella julacea* B. S. G.**

RIZE: İkizdere to Ispir, 3000 m., granite rocks and snow patch, 15 July 1960, S. & H. 6208d.

***Lescurea mutabilis* var. *saxicola* (B. S. G.) Milde**

RIZE: İkizdere to Ispir, 3000 m., granite rocks and snow patch, 15 July 1960, S. & H. 6208c.

Lescuraea saviana (De Not.) Lawton

ARTVIN: Otingol, 2000 m., streamside and rocks in yayla pasture, 3 July 1960, S. & H. 5994g; *ibid.* epiphytic on trees and on rocks, 3 July 1960, S. & H. 5995e.

RIZE: Ilica, 1000 m., on quartzite boulders in shade, 21 July 1960, S. & H. 6310c.

Pseudoleskea incurvata (Hedw.) Dix.

ARTVIN: Otingol, 2000 m., streamsides and rocks in yayla pasture, on granite rocks, 3 July 1960, S. & H. 5994b.

TRABZON: Bayburt to Of, 3 km. north of pass, 2400 m., on base rich rocks and basic flushes, 11 July 1960, S. & H. 6205c.

Anomodon rugelii (C. M.) Keissler

RIZE: İkizdere to İspir, 2000 m., on granite rocks, 15 July 1960, S. & H. 6207a.

Thuidium abietinum (Brid.) B. S. G.

RIZE: Rize to İspir, top of pass, 3000 m., on granite rocks, 16 July 1960, S. & H. 6280h.

Cratoneuron filicinum (Hedw.) Roth

SIVAS: Gürün, 1400 m., on wet limestone rocks, 28 May 1960, S. & H. 5260e; Bey Dağ, south of Zara, 200 m., on north-facing sandstone rocks by side of stream, 2 June 1960, S. & H. 5316g.

ARTVIN: Otingol, 1500 m., on rocks by waterfall, 3 July 1960, S. & H. 5996a.

Cratoneuron commutatum var. **falcatum** (Brid.) Moenk.

MARAS: Nurihak Dağ, 2500 m., around springheads, 17 June 1960, S. & H. 5659a.

Hygroamblystegium fluviatile (Hedw.) Loeske

RIZE: Ilica, 2200 m., on wet granite rocks and in *Rhododendron* scrub, 21 July 1960, S. & H. 6307a.

Amblystegium serpens (Hedw.) B. S. G.

ANKARA: Ankara Baraj, on volcanic tuff soil under fir trees, 7 April 1958, *Merton*, 71. On soil under firs, 7 April 1958, *Merton*, 106.

Isothecium myosuroides Brid.

GÜMÜŞANE: Gümüşane, 1400 m., in scrub oak community, 18 May 1960, S. & H. 5059b.

SIVAS: Yildiz Dağ, 1800 m., on bases of oaks, 4 June 1960, S. & H. 5350b.

Camptothecium sericeum (Hedw.) Kindb.

İZMİR: Bergama, 400 m., sunny among ruins, 21 May 1962, *Dudley* D.34833).

KUTAHYA: Hakisehir to Kutahya 15 km. from K.; 800-900 m., canyon in weathered metamorphic rock, 22 June 1962, *Dudley* (D.36091).

Camptothecium philippeanum (Spruce) Kindb.

GÜMÜŞANE: Gümüşane, 1400 m., in scrub oak community, 18 May 1960, *S. & H.* 5059c.

Pleuropus euchloron (Bruch) Broth.

ARTVIN: Otingol, 1500 m., on rocks by waterfall, 3 July 1960, *S. & H.* 5996b.

Brachythecium rutabulum (Hedw.) B. S. G.

ARTVIN: Otingol, 1500 m., on rocks by waterfall, 3 July 1960, *S. & H.* 5996d.

Brachythecium rivulare (Bruch) B. S. G.

ARTVIN: Otingol, 1500 m., on rocks by waterfall, 3 July 1960, *S. & H.* 5996k.

Brachythecium collinum (Schleich.) B. S. G.

SIVAS: Bey Dağ, south of Zara, 2700 m., on dry north-facing sandstone rocks, 2 June 1960, *S. & H.* 5318b; Şebinkarahisar to Giresun, top of pass and summit ridges, 1400 m., on turf banks and igneous rocks, 24 June 1960, *S. & H.* 5817a.

Brachythecium trachypodium (Funck) B. S. G.

SIVAS: Bey Dağ, south of Zara, 200 m., on north-facing sandstone rocks by side of stream, 2 June 1960, *S. & H.* 5316e.

Eurynchium striatum (Hedw.) Schimp.

BALIKESİR: Kaz Dağ, 15 km. from Beypinar, Beypinar to Zetunli, 500 m., damp springy dripping limestone ledges, 20 May 1962, *Dudley* (D.34851).

Eurynchium riparioides (Hedw.) Jennings

SIVAS: Yildiz Dağ, 1800 m., in stream on granite, 4 June 1960, *S. & H.* 5349.

BALIKESİR: Kaz Dağ, 15 km. from Beypinar to Zetunli, 500 m., damp springy dripping limestone ledges, 20 May 1962, *Dudley* (D.34851a) and *Dudley* (D.34853).

Eurynchium confertum (Dicks.) Milde

TRABZON: 3 km. south of Trabzon, 100 m., on igneous rocks, 16 May 1960, *S. & H.* 5025i.

Pseudoscleropodium purum (Hedw.) Fleisch.

TRABZON: Macka, 24 km. south of Trabzon, 250 m., on shady floor of *Carpinus-Picea* forest, 28 June 1960, *S. & H.* 5897.

ARTVIN: Otingol, 2000 m., streamsides and rocks in yayla pasture, on granite rocks, 3 July 1960, *S. & H.* 5994c.

Hypnum cupressiforme Hedw.

ARTVIN: Otingol, 2000 m., streamsides and rocks in yayla pasture, on granite rocks, 3 July 1960, S. & H. 5994f.

Rhytidium rugosum (Hedw.) Kindb.

TRABZON: Bayburt to Of, 3 km. north of pass, 2400 m., on base rich rocks and basic flushes, 11 July 1960, S. & H. 6205a.

RIZE: Rize to Ispir, top of pass, 3000 m., on granite rocks, 16 July 1960, S. & H. 6280e.

Reboulia hemisphaerica (L.) Raddi

TRABZON: 3 km. south of Trabzon, 100 m., on igneous rocks, 16 May 1960, S. & H. 5025g.

Conocephalum conicum (L.) Dum.

ARTVIN: Otingol, 1500 m., on rocks by waterfall, 3 July 1960, S. & H. 5996h.

Marchantia polymorpha L.

SIVAS: Bey Dağ, south of Zara, 2000 m., on north-facing sandstone rocks by side of stream, 2 June 1960, S. & H. 5316c.

RIZE: Rize to İkizdere road, on damp shady sandstone banks, 400 m., 14 July 1960, S. & H. 6206b.

Metzgeria furcata (L.) Dum.

RIZE: İkizdere to Ispir, 2000 m., on granite rocks, 15 July 1960, S. & H. 6207b.

Fossombronina angulosa (Dicks.) Raddi

RIZE: 20 km. west of Pazar, 10 m., on damp shady banks, on acid rocks, 29 June 1960, S. & H. 5908e.

Blepharostoma trichophylla (L.) Dum.

ARTVIN: Otingol, 2000 m., streamsides and rocks in yayla pasture, on granite rocks, 3 July 1960, S. & H. 5994h; Otingol, 1500 m., on *Fagus* trunks in *Picea* forest, 4 July 1960, S. & H. 6023b.

Bazzania tricrenata (Wahl.) Trev.

RIZE: İkizdere to Ispir, 2000 m., on granite rocks, 15 July 1960, S. & H. 6207c.

Calypogeia trichomanis (L.) Corda

RIZE: 20 km. west of Pazar, 10 m., on damp shady banks, on acid rocks, 29 June 1960, S. & H. 5908d.

Plectocolea hyalina (Lyell) Mitt.

RIZE: Rize to İkizdere road, on damp shady sandstone banks, 400 m., 14 July 1960, S. & H. 6206c.

Plagiochila asplenioides (L.) Dum.

GÜMÜŞANE: Zigana Pass, 1500 m., on granite boulders in spruce forest, 17 May 1960, S. & H. 5038.

ARTVIN: Otingol, 1500 m., on *Fagus* trunks in *Picea* forest, 4 July 1960, S. & H. 6023c.

Gymnomitrium concinnatum (Lightf.) Corda

RIZE: İkizdere to Ispir, 3000 m., granite rocks and snow patch, 15 July 1960, S. & H. 6208e; Ilica, 2200 m., on wet granite rocks and in *Rhododendron* scrub, 21 July 1960, S. & H. 6307d.

ARTVIN: Mağara yayla, Şavval Tepe, Murgul, 2000 m., on granite rocks above tree line, 6 July 1960, S. & H. 6024g.

Diplophyllum albicans (L.) Dum.

RIZE: 20 km. west of Pazar, 10 m., on damp shady banks, on acid rocks, 29 June 1960, S. & H. 5908a.

ARTVIN: Mağara yayla, Şavval Tepe, Murgul, 2000 m., on granite rocks above tree line, 6 July 1960, S. & H. 6024e.

Porella platyphylla (L.) Lindb.

ARTVIN: Otingol, 1500 m., on *Fagus* trunks in *Picea* forest, 4 July 1960, S. & H. 6023a.

Radula complanata (L.) Dum.

ARTVIN: Otingol, 1500 m., on *Fagus* trunks in *Picea* forest, 4 July 1960, S. & H. 6023e.

Frullania dilatata (L.) Dum.

RIZE: Ilica, 1000 m., *Fagus-Picea* forest, mostly epiphytes on beech, 19 July 1960, S. & H. 6292a.